

REMARKS

Claims 35 through 40 are now pending in the application. Claims 35 and 36 have been amended. Claims 23 through 31 were previously cancelled without prejudice to the subject matter contained therein in Applicant's Amendment filed December 9, 2004. Claims 1 through 22 and 32 through 34 have been cancelled hereby without prejudice to the subject matter contained therein. These claims are cancelled for purposes of expediting prosecution. Applicant reserves the right to refile these cancelled claims and contest the rejections in a subsequent application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

Claims 35-40

During an April 19, 2005 telephone conversation between the Examiner and Applicant's patent agent Kevin Pumm (Reg. No. 49,046), the Examiner indicated that he believed the amendments to claim 35 herein patentably distinguish claim 35 over Japanese Patent JP 408228910 A (the '910 Patent). Accordingly, Applicant believes that claims 35 through 40, as amended per this telephone discussion with the Examiner, are in a condition for allowance.

Claim 35 has been amended to clarify that the piano hinge includes "hinge leafs defining a passage into which the two-way SMA pin fits, and a key-spline arrangement rigidly securing the two-way SMA pin to the hinge leafs for transfer of torque from the two-way SMA pin to one of the hinge leafs relative to the other of said hinge leafs." Applicant believes that these amended features in claim 35 were already subject to the Examiner's search at least in view of the claimed features in claims 7 and 36. Accordingly, Applicant believes that the amendment of claim 35 does not require an additional Examiner's search.

REJECTION UNDER 35 U.S.C. § 102

Claims 1, 3-11, 14-19, 22, and 32-36 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Japanese Patent JP 408228910 A (the '910 Patent). This rejection is respectfully traversed.

At the outset, the cancellation of claims 1-22 and 32-34, and amendment of claim 35 have rendered moot the Section 102 rejections.

As noted above, claim 35 has been amended in a manner the Examiner indicated he believed would patentably distinguish claim 35 over the '910 Patent. Accordingly, Applicant believes that claims 35-40 as amended per this telephone discussion with the Examiner are in a condition for allowance.

As discussed during the telephone call, the '910 Patent discloses a wire [7] having ends that are bent to engage the cover [2] and the surface of the hinge mechanism [6], so as to operate like a torsion spring for biasing the cover [2] to an open position when the SMA wire is heated. When the wire [7] is not heated, the cover is free to rotate because the end of the wire is not secured to the hinge mechanism [6] and may move away from the mechanism. Without heat, the wire [7] does not produce a biasing force for lifting the cover [2], which remains closed due to gravity. Because the end of wire [7] merely contacts the hinge mechanism [6] and is not secured thereto, the cover [2] is free to rotate about the wire [7] to an open position. The wire [7] also pivotally connects the cover [2] to hinge mechanism [6] at flange points [8A] and [9A], thus requiring the parts to have pivot flanges for receiving the wire [7].

In contrast to the pivot flange design in the '910 Patent, amended claim 35 recites "hinge leafs defining a passage into which the two-way SMA pin fits". Also unlike the '910 Patent, the two-way SMA hinge pin as claimed in claim 35 does not have bent ends for engaging the opposing parts [2] and [6]. Perhaps most significant of all, claim 35 requires "a key-spline arrangement rigidly securing the two-way SMA pin to the hinge leafs for transfer of torque from the two-way SMA pin to the appropriate hinge leaf." An example of a key-spline arrangement is shown in Figure 1 of the current specification. Advantageously, a hinge as shown in Figure 1 of the present application could be used to retrofit applications presently including a conventional mechanical hinge. (See, for example, paragraph [0027]). Such mechanical hinges have hinge leafs that are capable of rotating flush to one another, for use in applications such as a door hinge. This is unlike the design in the '910 Patent which cannot be used to retrofit a mechanical hinge with leafs that rotate flush to one another, because the bent wire ends [7] that contact the opposing part surface would prevent the opposing surfaces from

rotating flush with each other. At best, the '910 Patent provides motivation to attach its SMA wire [7] to a conventional mechanical hinge for providing torsional bias to the hinge, where the wire [7] would interfere with the hinge leafs rotating flush with each other. Applicant further submits that the key-spline arrangement would not have been an obvious design choice, because one skilled in the art of hinges would not have considered securing the hinge pin to the hinge leafs in that doing so would prevent the free rotation of the hinge leafs about the pin. Embodiments of the present invention include a hinge pin that is rotated only through the twisting that occurs when the two-way SMA changes from one of the austenitic and martensitic states to the other state. For at least these reasons, Applicant submits that amended claim 35 is distinguished over the '910 Patent and is allowable.

With regard to dependent claim 36, this claim depends from independent claim 35, which Applicant believes to be allowable in view of the above remarks. Accordingly, Applicant respectfully submits that claim 36 is also in condition for allowance for at least the reasons given above.

REJECTION OF CLAIMS 12, 13, 20, 21, AND 37-40 UNDER 35 U.S.C. § 103

Claims 12, 13, 20, 21, and 37-40 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent JP 408228910 A. This rejection is respectfully traversed.

Claims 12, 13, 20 and 21 have been cancelled without prejudice.

With regard to dependent claims 37-40, these claims each depend from independent claim 35, which Applicant believes to be allowable in view of the above remarks. Accordingly, Applicant respectfully submits that claims 37-40 are also in condition for allowance for at least the reasons given above.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and

as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned directly at (314) 726-7502.

Applicant believes that he does not owe any fee in connection with this filing. If, however, Applicant does owe any such fee(s), the Commissioner is hereby authorized to charge the fee(s) to Deposit Account No. **08-0750**. In addition, if there is ever any other fee deficiency or overpayment under 37 C.F.R. §1.16 or 1.17 in connection with this patent application, the Commissioner is hereby authorized to charge such deficiency or overpayment to Deposit Account No. **08-0750**.

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Respectfully submitted,
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